

VIII

Studies of Disasters and Other Extreme Situations — An Annotated Selected Bibliography

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Introduction

This selected bibliography has been prepared to aid and stimulate research on the human aspects of disaster. It does not represent an inclusive list of disaster references, nor does it contain more than a few references to related fields of research, though their pertinence to disaster study is recognized. Rather it represents an effort to provide a collection of items characterized by a core of reliable and scientific data for individuals who are interested in disaster research but not wholly familiar with the scope of the field.

The criteria governing the inclusion of an item are the following: it describes and presents facts, attempts to relate and explain the observed phenomena in a schematic or theoretical model, and provides an objective, logical analysis of the data. In examining the literature it became obvious that few single studies embraced all of the above criteria, yet many studies treated one or more of the criteria efficiently. Therefore, studies that demonstrate sensitive and insightful observations, though they do not contain systematic analyses, have been included because they give rise to hypotheses and furnish a basis for carefully designed and executed research. Papers that attempt to conceptualize or formulate disaster models or theories are included for the purpose of familiarizing those who are new to the field with existing thought, and stimulating more activity of this kind. A few reviews of disaster literature have been included because they supply in themselves, a broad scope of references. Some of the classical treatises, e.g., those dealing with the physiological aspects of stress are included, but their number is kept at a minimum.

A major goal of this bibliography is that of gathering together less well-known works of high quality. A number of documents which fall in this category are unpublished or restricted in distribution. It is regretted that this condition prohibited them from being included in this collection. All of the works listed are published, but a few are not widely available. These may be obtained from the agencies listed below.

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Publications of the National Academy of Sciences—National Research Council may be purchased from the Publications Office, National Academy of Sciences—National Research Council, Washington 25, D.C.

Studies in the Holland Flood Disaster 1953 are available to qualified individuals from the office of the Committee on Disaster Studies, National Academy of Sciences—National Research Council, Washington 25, D.C.

"Human Reactions in Disaster Situations," is available to government agencies, and agencies having contracts with the government, from the Armed Services Technical Information Agency, Document Service Center, Knott Building, Dayton 2, Ohio. Order number for document is AD-107 594.

Survey of Public Knowledge and Attitudes Concerning Civil Defense may be obtained from the Survey Research Center of the University of Michigan, Ann Arbor, Michigan.

"The Waco-San Angelo Disaster Study: Report on Second Year's Work," may be borrowed from the University of Texas Library, and the public libraries of Waco and San Angelo, Texas.

Project East River and the *U.S. Strategic Bombing Survey* have been deposited at the Library of Congress, Washington, D.C.

The Symposium on Stress has been deposited at the Library of Congress, Washington, D.C.; the Library of the National Institute of Mental Health, National Institutes of Health, Bethesda, Maryland; and the National Library of Medicine, Washington, D.C. It is also available at the libraries of many medical schools.

A Study of the Effect of Catastrophe on Social Disorganization may be obtained by directing requests to the Chief of Research and Development, Department of the Army, Washington, D.C.

Aub, Joseph C., et al. *Management of the Cocoanut Grove Burns at the Massachusetts General Hospital*. Philadelphia: J. B. Lippincott Co., 1943. This volume consists of a series of papers which deal with each phase of the medical care afforded victims of the Cocoanut Grove fire disaster from the time of rescue until discharge from the hospital. Many of the victims received follow-up study. Their progress and the outcome of medical and psychiatric therapy are reported. While a considerable portion of the

volume is concerned with problems of burn therapy, the problems of administration, organization of professional personnel, and social services are discussed in full. Of particular value to the social scientist is the study of the emotional and behavioral response of the disaster victims by Cobb and Lindemann.

Bernert, Eleanor H., and Fred C. Ikle. "Evacuation and the Cohesion of Urban Groups," *American Journal of Sociology*, LVIII, No. 2 (September 1952), 133-138. Evacuation and its attendant problems as they occurred in Great Britain and Germany during World War II are examined. Solidarity of family life among the population proved to be the most forceful deterrent to evacuation. This became less important as destruction of a city increased or as the threat of invasion by the enemy increased. Other problems of evacuation that are discussed are those of host-evacuee relations, ecological effects of evacuation, reaccommodation of the homeless within the city, and evacuation of the homeless outside the city.

Bettelheim, Bruno. "Individual and Mass Behavior in Extreme Situations," *Journal of Abnormal and Social Psychology*, XXXVIII, No. 4 (October 1943), 417-452. An account of life in a German concentration camp is given. The reactions of the prisoners to camp life and the psychological defenses developed to protect the "self" are identified. Personality changes occurred in the prisoners and were manifested by change in attitude toward the Gestapo, the prisoners' families, friends, and toward themselves. Significant differences are noted between those who had experienced long imprisonment and those whose imprisonment had been of short duration. The data were collected by Bettelheim during his own imprisonment.

Blocker, Virginia, and T. G. Blocker. "The Texas City Disaster: A Survey of 3,000 Casualties," *The American Journal of Surgery*, LXXVIII, No. 5 (November 1949), 756-771. A description of the disaster, the events leading up to it, its effects on the people and on the city are given. Activities of organizations and individuals are briefly discussed. Medical care is described in detail. Types of injury sustained by the victims, therapy, medical and surgical complications, medical personnel and hospital organization, and the problems of reconstruction and rehabilitation are discussed. Recommendations for hospital disaster plans are presented.

Boder, David P. *I Did Not Interview the Dead*. Urbana: University of Illinois Press, 1949. Seven verbatim interviews of inmates of the Nazi concentration camps are presented in this volume. Their experiences represent only a limited picture of the annihilation and break-down of a large cultural group. Although the magnitude of the stress endured by these people far surpasses the stress of usual peacetime disasters, the trauma, the associated psychodynamics and traumatic aftermath provide data for the study of loss and deprivation following disaster.

Brooks, John. "Five-Ten on a Sticky June Day," *The New Yorker*, May 28, 1955, 39, *passim*. A reporter describes the conditions under which tornadoes occur, the damage they cause, the cues that herald their approach, and in par-

ticular, the events of the Worcester tornado of June 9, 1953. A large part of the report is concerned with tracing the signs of warning. Official groups, such as the weather bureau scientists, were aware that unusual atmospheric conditions existed, but, in keeping with the conservative tradition of New England, refrained from forecasting tornado conditions because they feared that the people of the region would panic. Individual personal experience relating to warning is reported. Finally, there is a discussion of the population's need to explain the occurrence of the tornado's relation to recent A-bomb tests.

Cantril, Hadley, Hazel Gaudet, and Herta Hertzog. *The Invasion from Mars*. Princeton: Princeton University Press, 1940. An attempt is made to determine the psychological factors behind the reactions of the American population following the Orson Welles broadcast of October 30, 1938. Information obtained from 135 individuals, over 100 of whom were disturbed by the broadcast, is examined. Socio-environmental factors, personality, and education of the involved respondents are analyzed for their relationship to panic behavior.

Carr, Lowell Juilliard. "Disaster and the Sequence-Pattern Concept of Social Change," *American Journal of Sociology*, XXXVIII, No. 2 (September 1932), 207-218. The hypothesis is presented that "all social change tends to follow a definite sequence pattern: 1) a precipitating event; 2) adjustment-dislocation; 3) individual, interactive, and cultural readjustments." The effects on society and the changes that follow a disaster are described as a series of events, no one of which represents the whole of the phenomena of disaster. Examination of the sequence-pattern of disaster provides a technique for identifying dislocative events before they actually occur. The author also develops a typology of disaster.

..... *Situational Analysis: An Observational Approach to Introductory Sociology*. New York: Harper & Bros., 1948. This volume is primarily devoted to the methodology of observation in sociology. The vast area of group phenomena is examined in many possible situations. Disaster is discussed and a model of disaster types presented. This is a particularly useful text for individuals who are embarking on a program of disaster research for the first time.

Chapman, Dwight W. (ed.). "Human Behavior in Disaster: A New Field of Social Research," *Journal of Social Issues*, X, No. 3 (1954), 1-72. The entire issue, consisting of seven papers, is devoted to a presentation of disaster research findings and conceptual approaches to the study of human behavior in disaster. Four papers deal directly with empirical study of the psychological and social factors active in the human response to stress and disaster, while three articles summarize the accomplishments of disaster research or explore the areas of future research.

Clifford, Roy A. *The Rio Grande Flood: A Comparative Study of Border Communities in Disaster*. (Committee on Disaster Studies Report, No. 7.) Washington, D.C.: National Academy of Sciences-National Research Council, 1956. Adjacent border communities in Mexico and

- the U.S.A. were studied to determine the actions of internal and external organizations, individual responses to the flood situation, relations of informal groups and organizations within and between the two communities, and the formal relations of national agencies of the respective governments. General conclusions, hypotheses and recommendations are derived from the analysis of more than 250 interviews which were obtained from individuals who had no formal affiliation with organizations, and from members of formal organizations in both communities. The analysis is in terms of Parsons' "pattern-variables."
- Danzig, Elliott R., Paul W. Thayer, and Lila L. Galanter. *The Effects of a Threatening Rumor on a Disaster-Stricken Community: The Port Jervis Study*. (Committee on Disaster Studies Report.) Washington, D.C.: National Academy of Sciences-National Research Council. (In press). The behavior of residents of an already disaster-struck community is examined to discover the effects of a threatening rumor. Two samples of the population were drawn for study, one consisting of 107 residents chosen at random from the entire city, and the other of 39 residents living in the area of greatest proximity to the threat. Thirty-one interviews were conducted with key city officials. Relationships among variables are examined and hypotheses tested. A game theory model is presented by which behavior in similar situations may be predicted.
- Ellemers, J. E. *General Conclusions*. (*Studies in Holland Flood Disaster 1953*, Vol. IV.) Washington, D.C.: National Academy of Sciences-National Research Council, Committee on Disaster Studies, 1955. The most outstanding and important findings of the entire disaster study are compiled and a theoretical frame of reference is offered as an aid to further insight into disaster phenomena. A bibliography, glossary, map of the disaster area, and index for all four volumes are contained in Volume IV.
- Foreman, Paul B. "Panic Theory," *Sociology and Social Research*, XXXVII, No. 5 (1953), 295-304. A theory of panic based on type and character of stimulus, conditions prior to stimulus impact, and physiological and psychological states of the involved individuals is presented. There is some discussion of the stereo-typical ideas about panic and 19 references for control measures derived from the data.
- Form, William H., Charles P. Loomis, *et al.* "The Persistence and Emergence of Social and Cultural Systems in Disasters," *American Sociological Review*, XXI, No. 2 (April 1956), 180-185. Three empirical studies of varying types of disaster are presented in order to demonstrate the emergence of disaster-oriented (or adjustive) social and cultural systems following catastrophes. The relatedness of these systems to pre-disaster cultural and organizational systems is examined. Areas of emphasis consist of the formation and competence of spontaneously-formed groups in the immediate post-disaster period, the functioning of pre-disaster groups in post-disaster periods, the assumed role of rescuers in shaping perception of victim needs, and the success of their activities. The interpretation of pre-disaster danger cues to two culturally different populations by informal groups, and a comparative study of the meaning of family ties, responsibility for the victims' welfare, organizational coordination, and expression of hostility are considered.
- Fraser, Russell, I. M. Leslie, and D. Phelps. "Psychiatric Effects of Severe Personal Experiences During Bombing," *Proceedings of the Royal Society of Medicine*, XXXVI (1943), 119-123. The study is concerned with the relative importance of various factors which may contribute to the development of neurosis after bombing. One hundred twenty-seven traceable individuals from a heavily bombed English city who had been admitted to F. A. P.'s were followed up ten months later. Analysis was made on bases of age, sex, marital status, bombing experience, personality, living conditions prior to incident, emotional reaction at the incident, loss of home, loss of close friends, continuing living in the danger area. Conclusions concerning causes of neurosis development and persistence or recovery are drawn.
- Freeman, Dennis C., and Douglas Cooper. *The Road to Bordeaux*. London: Cresset Press, 1940. Many disaster phenomena are described in this journalistic account of the evacuation of northern France during World War II. Events leading to evacuation, problems precipitated by rumor and evacuation, and the behavior of the evacuating population, including panic behavior, are recounted. This is not a scientific document but many insights important to the study and interpretation of behavior in disaster are provided.
- French, J. R. P. "Organized and Unorganized Groups Under Fear and Frustration," in *Authority and Frustration*. ("University of Iowa Studies in Child Welfare," Vol. XX, Part V.) Iowa City: State University of Iowa, 1944. The behavior of eight organized and eight unorganized groups of six members each were studied to discover and identify characteristic differences. Two experimental situations, one productive of fear and the other of frustration were employed. Methodology and theory were patterned after Lewin and Lippit and hypotheses were developed within this structure.
- Fritz, Charles E., and Eli S. Marks. "The NORC Studies of Human Behavior in Disaster," *Journal of Social Issues*, X, No. 3 (1954), 26-41. This study is based on the interviews of nearly 1,000 individuals who had been exposed to disaster. Over 70 different major and minor disasters or crisis events are represented. Designs of field investigations were varied to accommodate the particular problems and events. There were, however, many common denominators among the 70 field studies. Immediate emergency and post-emergency periods were intensively examined in an effort to isolate behavioral reactions and other disaster problems. The literature on panic was analyzed and evaluated with reference to the disaster studied. Systematic analysis of reactions to disaster are presented together with some of the factors contributing to the differences in reactions. Among these are: forewarning, its amount and nature; effects of family separation; and the effects of exposure to large numbers of dead and injured.

- Fritz, Charles E., and J. H. Mathewson. *Convergence Behavior in Disasters: A Problem in Social Control*. (Committee on Disaster Studies Report, No. 9.) Washington, D.C.: National Academy of Sciences-National Research Council, 1957. The findings of current disaster research bearing on the informal mass movement of people, messages, and supplies toward a disaster area and toward various points within disaster-related zones are summarized and analyzed. The authors discuss the scope of the problem, forms of convergence, and types of convergers. Types of convergers classified as the returnees, the anxious, the helpers, the curious, and the exploiters are derived from an analysis of motivational factors. Various methods and techniques for controlling convergence are discussed.
- Fritz, Charles E., and Harry B. Williams. "The Human Being in Disasters: A Research Perspective," *The Annals of the American Academy of Political and Social Science*, CCCIX (January 1957), 42-51. The common stereotyped concepts of disaster behavior, such as panic, looting and mental deviation, are examined in the light of findings from over forty recent research studies. The problems discussed are those of: disaster warnings; survival behavior; behavior during the post impact emergency period; convergence behavior; coordination and control of the disaster emergency and relief measures; emotional and psychosomatic aftermath; and hostility and blame. The positive effects of post-disaster social solidarity on individual and group behavior are described.
- Hachiya, Michihiko. *Hiroshima Diary*. Chapel Hill: University of North Carolina Press, 1955. *Hiroshima Diary* is the day-to-day record of a physician who lived through the atomic bombing of that city. Dr. Hachiya presents a verbal portrait of the community and people who survived the bomb, he describes radiation sickness, the misinterpretation natural to those who had never seen it before, the conditions of the hospital, reactions of people and general morale following a disaster of these proportions. Of real value to the disaster researcher is the day-to-day description of events, the problems precipitated and their solutions, and the detailed account of human reactions to atomic disaster. Though this is not an analytic study, it provides many insights of value to social scientists interested in disaster.
- Hirshleifer, Jack. "Some Thoughts on the Social Structure After a Bombing Disaster," *World Politics*, VIII (January 1956), 206-227. Problems of the broad social and political consequences of an atomic bombing attack are considered. An effort is made to anticipate the economic, political and social results of such a disaster. Measures required to control a population whose values and status have changed as a result of weakened government and of deprivation are suggested.
- Hudson, Bradford B. "Anxiety in Response to the Unfamiliar," *Journal of Social Issues*, X, No. 3 (1954), 53-60. Hudson has conducted a number of experimental studies designed to clarify and isolate the variables elemental to an interpretation of threat. To this end, groups of individuals varying in number from 15 to over 100 were subjected to a pattern of sound suggestive of a surprise air raid. Partial analysis of the data indicates that this situation is productive of uncertainty and confusion of hypotheses regarding the meaning of the events (sound pattern). Another experiment designed to test the response to an ambiguous stimulus, one of strangeness rather than threat, also elicited anxiety in the subjects. An additional experiment consisting of familiar stimuli occurring in an inappropriate environment, likewise gave rise to anxiety. The findings of the studies are related to disaster situations and a theoretical interpretation is presented.
- Idle, E. Doreen. *War Over West Ham*. London: Faber & Faber, 1943. Part I describes the effects of the blitz of World War II on the English city of West Ham with respect to Air Raid Protection and Civil Defense administration. Sociological and demographic factors are described as a background to the changes in the activities noted above. Part II describes the people's response to the blitz, including changes in individual and organizational relationships. The author notes certain social problems which existed before the blitz but which became greatly magnified during the blitz or gave rise to further problems.
- Ikle, Fred C. "The Effect of War Destruction Upon the Ecology of Cities," *Social Forces*, XXIX, No. 4 (May 1951), 383-391. Demographic aspects of war destruction in cities with emphasis on density changes are reported in this paper. A major finding of the study was that in spite of the many reasons for not returning to the damaged cities, most individuals sought to return to their former place of residence or at least to their former area of residence. Factors such as a desire to return to their own social group, or to the place where they had status, are offered as possible explanations for the tendency to return.
- "The Social Versus the Physical Effects From Nuclear Bombing," *Scientific Monthly*, LXXVIII, No. 3 (March 1954), 182-187. Although analysis of the known physical and social effects of bombing are not entirely adequate to predict social and physical effects of nuclear bombing, some predictive estimates are possible. The author points out the fact that a city may sustain a high degree of physical destruction, yet not lose an equal portion of its population. The city is able to adjust to physical destruction. Casualties, social problems such as lack of housing and other facilities, and morale are all considered. Important to realistic thinking about the atom bomb is the recognition that awesome physical destruction, though it gives rise to social problems, does not necessarily give rise to insurmountable social difficulties.
- Ikle, Fred C., and Harry V. Kincaid. *Some Social Aspects of Wartime Evacuation of American Cities: With Particular Emphasis on Long-Term Housing and Reemployment*. (Committee on Disaster Studies Report, No. 4.) Washington, D.C.: National Academy of Sciences-National Research Council, 1956. Attention is directed toward the social and economic problems arising out of semi-permanent removal of large numbers of urban dwellers to safer areas. Types of evacuation, planning for evacu-

ation, problems of individual motivation, panic, housing and related problems, human relations in reception centers, and a consideration of the re-employment of evacuees are discussed. The approach to the many problems is general. A 46-item bibliography is included.

Janis, Irving L. *Air War and Emotional Stress: Psychological Studies of Bombing and Civilian Defense*. New York: McGraw-Hill Book Co., 1951. This volume, consisting of three parts, describes and identifies the psychological responses to air warfare. Part I discusses the relevant data on responses to atomic bombing. By examining the original protocols of the USSBS interviews and other available material on the bombing of Hiroshima and Nagasaki, information was obtained on the emotional impact of the A-bomb and its psychological aftermath. Part II analyzes in psychodynamic terms the various types of behavior found in disaster and indicates how the wartime situation influenced emotional responses. Part III considers the psychological aspects of Civil Defense in the U.S. Control of disaster, training, prevention of panic and emotional inoculation are among the major problems discussed. Many practical recommendations for Civil Defense planning are presented.

..... "Problems of Theory in the Analysis of Stress Behavior," *Journal of Social Issues*, X, No. 3 (1954), 12-25. A statement of the problems related to the lack of general theoretical categories and constructs essential to defining the central problems of disaster is given. The author suggests that with present knowledge it is not possible to construct a single theory of disaster encompassing socio-political-psychological variables. A more fruitful approach is that of formulating "miniature theories" which will increase the depth and understanding of the various disaster problems. There is need for more experimental and clinical study of the way people react to danger, threat, and impact. Psychological research on disaster behavior, patterns of emotional behavior, analysis of determinants, and the use of theoretical constructs are discussed.

Kartman, Ben, and Leonard Brown. (eds.). *Disaster!* New York: Pellegrini & Cudahy, 1948. Reportorial accounts of forty-six disasters are contained in this volume. Though this is not strictly a social science document, the events and individual responses described provide information of value to the social scientists. The nature of disaster, its problems and its effects on human beings are portrayed.

Killian, Lewis M. *An Introduction to Methodological Problems of Field Studies in Disasters*. (Committee on Disaster Studies Report, No. 8.) Washington, D.C.: National Academy of Sciences—National Research Council, 1956. Killian reviews the major problem areas in disaster research and suggests means of adequately dealing with the problems. Research design, scope and specificity of study, controls, and selection of the disaster to be studied are discussed. It is suggested that selection of the disaster to be studied be based in part on opportunities to obtain data pertinent to hypotheses developed from earlier exploratory studies. The selection of subjects for interview and the rationale for their selection in terms of design, sampling, and special information are examined. Considerable em-

phasis is placed on the collection of data, types of interviews, recording of interviews and techniques for obtaining maximum information from the disaster subjects. Special field problems, such as timing of field entry and the biases of retrospective interviews, are reviewed.

..... "The Significance of Multiple-Group Membership in Disaster," *American Journal of Sociology*, LVII, No. 4 (January 1952), 309-314. Multiple-group membership is studied in four community disasters. It was found that the multiple roles ordinarily assumed by individuals in non-disaster situations presented problems of psychological significance in crisis. Multiple-group loyalties and the roles dictated by them created dilemmas difficult to resolve. Identification of the groups and roles, and the ensuing conflict resulting from disaster are identified and described.

Killian, Lewis M., with the assistance of Randolph Quick and Frank Stockwell. *A Study of the Response to the Houston, Texas, Fireworks Explosion*. (Committee on Disaster Studies Report, No. 2.) Washington, D.C.: National Academy of Sciences—National Research Council, 1956. An explosion of a fireworks plant in Houston, Texas, provided an opportunity to study the immediate reaction of individuals to focalized disaster. The explosion created a mushroom-shaped cloud and considerable blast damage. Because of the ambiguity of the situation, the study focuses on the processes of perception, interpretation and communication—the ways in which people arrived at a definition of the situation.

Ktsanes, T., F. E. LaViolette, J. H. Rohrer, et al. *An Abstract of "Community Structure, Organization Structure, and Citizen Participation in Community-Wide Activities: A Study of Civil Defense in Mobile, Alabama."* Battle Creek: U.S. Federal Civil Defense Administration, 1956. Social variables that determine the ways in which a community-wide activity is articulated and accepted into an ongoing community structure are isolated. The general hypothesis of the report is that certain social structural features of a city influence participation in a particular organization. The social classes within the city are identified and their relationship to civil defense described. The role of the "power group," problems of achieving goals, problems of the minority group, and problems of attitude and communications are studied. Conclusions and recommendations for possible use in other communities are presented.

Lammers, C. J. *Survey of Evacuation Problems and Disaster Experiences*. (*Studies in Holland Flood Disaster 1953*, Vol. II.) Washington, D.C.: National Academy of Sciences—National Research Council, Committee on Disaster Studies, 1955. This volume contains the description and findings of a survey of evacuation problems and disaster experiences of the Dutch people. Part I deals with the relations between host and evacuee families, including inter-family adjustment, physical conditions, differences of social and employment status, and religious and political orientation. Part II is concerned with the evacuees in the reception center. Integration of the evacuee in the reception

center and conditions which hinder or promote adjustment are the major areas of investigation. Part III deals with very specific types of evacuee problems such as loss of family, effects of disaster on children, plans for the future, etc. Part IV represents an attempt to learn what actually happened to people and what their subjective feelings were about the disaster.

Logan, Leonard, Lewis M. Killian, and Wyatt Marrs. *A Study of the Effect of Catastrophe on Social Disorganization*. (Technical Memorandum, No. ORO-T-194). Chevy Chase, Maryland: Operations Research Office, July 1952. Analysis is made of a series of civilian disasters for the purpose of investigating the responses of troops to atomic attack by extrapolating from behavior observed among civilian groups in disasters and of troops in conventional warfare. Reactions of the participating populations, functioning of organizations for disaster control which existed prior to the disaster, and individual and group problems of rehabilitation are studied. Conclusions and recommendations are given.

MacCurdy, J. T. *The Structure of Morale*. New York: The Macmillan Co., 1943. This volume contains a description, definition, and analysis of morale. The author discusses 1) the perceived reality of fear, 2) emotional and behavioral expression of fear, and 3) the passive or active adaptation to fear. The role played by fear in the development of high or low morale, and social, psychological and cultural aspects of morale are examined. The effects on morale of various kinds of organizations and leadership are described. The author uses empirical data throughout the book to formulate a theory of morale.

Marks, E. S., Charles E. Fritz, *et al.* "Human Reactions in Disaster Situations." 3 vols. Unpublished report, National Opinion Research Center, University of Chicago, June 1954. These volumes are based on eight field studies of disasters conducted during the years 1950 and 1954, in which over 600 tape recordings were made of interviews with victims and various officials. There are two major areas of investigation: 1) the means by which effective social organization is reestablished after a disaster, and 2) individual definitions of the situation, emotional reactions, and overt behavior. With respect to the second area of investigation, rumor, leadership, and crowd behavior are given attention. Individual and organizational behavior are examined during the various phases of disaster.

Marshall, S. L. A. *Men Against Fire*. New York: William Morrow & Co., 1947. In this volume the author places emphasis for successful military endeavors on the morale of the man on the firing line, rather than on materiel and tactical factors. He repeatedly points out that proper use of materiel and the carrying out of tactical plans depends on human efforts. How these human efforts persist to a satisfactory conclusion or disintegrate are described and analyzed under the concept of morale. Contributing to good morale are adequate communication; group support and cohesion; and recognition, support and understanding stemming from strong leadership. The point is made that fear is a normal reaction to the stress of the battlefield,

and it is a fear that man cannot be conditioned against through present training. However, reactions to battle fear may be controlled by measures designed to raise morale, initiate action and maintain unity within the group.

..... *The River and the Gauntlet*. New York: William Morrow & Co., 1953. This is a "step by step," anecdotal description of how a military disaster develops. Though this is a journalistic account, it narrates in detail the emotional response and ensuing behavior of trained men under stress and threat. Problems common to natural non-military disaster such as those of communication, leadership, and disorganization, are in evidence. The author's technique for collecting information consists of interviews with all the individuals who participated in a given action from private to general. Corroborative data make it possible to describe the events as they happened, and to relate factors that might otherwise appear to be incidental.

Menninger, Karl A. "Psychological Aspects of the Organism Under Stress. II. Regulatory Devices of the Ego Under Major Stress," *Journal of the American Psychoanalytical Association*, II, No. 2 (April 1954), 280-310. The author defines and describes the regulatory devices used by the ego under stress. He places the various psychic and behavioral phenomena within a framework that is modeled after Selye's schema of the general adaptation syndrome. First order, usual or normal means of dealing with stress, through fifth order, disintegration of the ego and devices for adjustment, are discussed. Disease is viewed not so much as a lack of "ego strength" or an absence of normality, but as an effort on the part of the organism to adjust and survive under stress.

Michael, Donald N. "Civilian Behavior Under Atomic Attack," *Bulletin of the Atomic Scientists*, XI, No. 5 (May 1955), 173-177. The author reviews what is known of civilian response to atomic attack. Emphasis is placed on what can be expected of American city-dwellers under similar circumstances. Some knowledge is available through study of the Japanese and other populations exposed to bombing during World War II, and of the American population through study of non-atomic disasters. However, the bombs are increasing in size, hence there is a lack of reality in attempting to extrapolate future behavior in response to atomic disaster from past behavior. The effects on morale of atomic bombing are discussed, but no conclusion is reached that would allow prediction of American behavior and morale if subjected to atomic attack.

Mintz, Alexander. "Non-adaptive Group Behavior," *Journal of Abnormal and Social Psychology*, XLVI (1951), 150-159. The author presents a brief review of the literature on the theoretical concepts of non-adaptive behavior. The material presented demonstrates that the excited, expressive behavior of a nonadaptive nature which may be exhibited in panic or related situations may be explained by the individual's perception of the situation. Experiments were designed and conducted to show how "traffic" jams could be produced by disorganized, uncooperative, non-adaptive

behavior. The results of the experiments indicated that cooperation existed as long as cooperation brought reward, even in situations conducive to panic. When reward was no longer perceived, then a competitive situation developed leading to uncooperative, disorganized behavior, and possible disaster.

Moore, Harry Estill. *Tornadoes Over Texas*. Austin: University of Texas Press, 1957. How a city rebuilds after disaster, how its citizens react to disaster, and the roles played by individuals, private and governmental agencies during the two years following the disaster, are vividly described in this document. The story of rebuilding is told not only in terms of the social and psychological effects on people, but in the statistics of increased employment, decreased numbers of businesses, building permits, and records of corporations. Problems never before encountered and their solutions in the absence of precedent and clear legislation, are described.

Moore, Harry E., Fred R. Crawford, et al. "Waco-San Angelo Disaster Study: Report on Second Year's Work." Unpublished report, Department of Sociology, The University of Texas, Austin, (1955). This study is unique for its long range analysis of the rehabilitation problems of disaster. Governmental, economic, legal and sociologic factors influencing the recovery of two tornado-struck communities, and the sequence pattern of recovery are examined. The psychological effects on families resulting from disaster experience are investigated. A comparison of the two communities is included.

Nauta, L. W., et al. *Community Studies: A Study of Community Re-integration, A Study of the Destruction of a Community, A Study of Social Disorganization in a Community*. (Studies in Holland Flood Disaster 1953, Vol. III.) Washington, D.C.: National Academy of Sciences-National Research Council, Committee on Disaster Studies, 1955. This volume is concerned with the effects of disaster on the community as a whole. Part I, the study of community re-integration, gives a brief history of the village of Kortgene and provides background against which the subsequent disaster events are evaluated. Both sociological and psychological aspects of the disaster are analyzed in terms of the time dimension. Parts II and III deal with essentially the same areas of inquiry as Part I, and consist of analysis of the disaster events which occurred in two other villages.

Perry, Stewart E., Earle Silber, and Donald A. Bloch. *The Child and His Family in Disaster: A Study of the 1953 Vicksburg Tornado*. (Committee on Disaster Studies Report, No. 5.) Washington, D.C.: National Academy of Sciences-National Research Council, 1956. The reactions of children to a disaster impact as seen by their parents are described. An attempt is made to differentiate the various types of responses according to the kind of involvement experienced by the child. Further research is suggested on related areas such as changes in the emotional structure of the family, suppression of emotional expression about the experience, parent child relationship during the experience, and the role of peer group relationships in

helping the child express his feelings about the experience. At least one parent in each of the 91 families was interviewed to ascertain the effects on the children of the tornado experience.

Prince, Samuel Henry. *Catastrophe and Social Change*. (Studies in Political Science.) New York: Columbia University Press, 1920. The shock and social disintegration, individual and group responses, control and emergency measures, and the eventual rehabilitation of the city of Halifax following the explosion in 1917, are analyzed within a sociological perspective. Though this is one of the earliest of disaster studies, it remains, from a conceptual and observational viewpoint, a useful document for those currently engaged in disaster research.

General Report. (Part I of Project East River.) New York: Associated Universities, Inc., October 1952. This contains a statement of the problems of setting up and maintaining a national Civil Defense organization. It includes the concepts and principles which are said to be necessary to follow in such an undertaking, as well as a theory of organizations from which the basic framework of the overall civil defense task may be established.

Disaster Services and Operations. (Part VI of Project East River.) New York: Associated Universities, Inc., October 1, 1952. Basic principles governing Civil Defense activities are listed in order to clarify the functions of Civil Defense in disaster. The report is mainly concerned with the study of disaster services, the functions and responsibilities of these services, and a practical plan of operation. Problems of manpower, organization, duration of disaster periods, and communications and practice exercises are analyzed and recommendations are given for dealing with them.

Information and Training for Civil Defense. (Part IX of Project East River.) New York: Associated Universities, Inc., September 1952. Problems and procedures for the provision and stimulation of public information, training for individual and national survival, educational programs oriented toward national psychological stability, and methods for meeting these needs on the federal, state and local level are defined. A section of the report deals exclusively with the control and prevention of panic. Recommendations are summarized.

Selected References for Civil Defense. (Part X of Project East River.) New York: Associated Universities, Inc., June 1952. This document contains a general bibliography and bibliographies on organizational measures, protective measures, control measures, types of warfare, and medical functions. There are 350 selected references, all of which have been taken from the Library of Congress bibliography on civil defense. The latter include titles dealing with social and psychological aspects and organizational and logistical features of civil defense.

Quarantelli, Enrico L. "Nature and Conditions of Panic," *American Journal of Sociology*, LX (November 1954) 267-275. This detailed and systematic analysis of the phenomenon of panic is based on a survey of the literature and a large amount of empirical data gathered by the

NORC disaster studies. Since the term "panic" has been used to describe many situations of differing characteristics, a definition of panic was derived from an analysis of flight behavior as it has been described and experienced by victims of disaster and other threatening situations. The author concludes that flight behavior is not necessarily panic behavior; panic is an acute fear reaction marked by loss of self-control which is followed by nonsocial and nonrational flight behavior. Three major types of panic and the situational conditions conducive to panic are identified.

Raker, John W., Anthony F. C. Wallace, Jeannette F. Rayner, and Anthony W. Eckert. *Emergency Medical Care in Disasters: A Summary of Recorded Experiences*. (Committee on Disaster Studies Report, No. 6.) Washington, D.C.: National Academy of Sciences-National Research Council, 1956. The problems precipitated by disaster which affect medical care are analyzed. Following disaster, medical agencies are called upon to carry an abnormally increased load. The problems identified as most pertinent to efficient care and organization are notification of medical agencies and agents, rescue of disaster victims, first aid and field triage, and transportation of victims. Problems involving therapeutic procedures and the results of therapy carried out under the stress of disaster are discussed. Administrative problems of medical care are also identified and analyzed. Recommendations and suggestions for hospital disaster plans derived from the data are made.

Rosow, Irving. *Authority in Natural Disasters*. (Committee on Disaster Studies Report.) Washington, D.C.: National Academy of Sciences-National Research Council. (In press). The authority systems of four disaster-struck communities are studied to determine who spontaneously assumes authority, what kind of authority is assumed, what measures are taken to legitimize authority, and what characteristics of authority are functional or dysfunctional. Activities occurring during the various post-disaster phases of disaster are described, and authority for social services and overall field authority are analyzed.

Schmideberg, Mellita. "Some Observations on Individual Reactions to Air Raids," *International Journal of Psychoanalysis*, XXIII (1942), 146-176. The predictions of government and medical officials regarding probable reactions to air raids are reviewed. The major part of the paper is devoted to observation of the day-to-day reactions to air raids of patients undergoing psychoanalysis with the author. The symbolic significance of air raids to these patients and adaptation to the situation are discussed.

Selye, Hans. *Stress*. Montreal: Acta, Inc., Medical Publishers, 1950. The concept of stress, particularly the organism's "stereotypical response," which occurs in addition to the specific symptoms of the stress factor, is described and defined. The physiological mechanisms and the patterns of "stereotypical response" are investigated and a theory of adaptation to stress is postulated. Stress may derive from social and psychological events and bring about changes in the organism which in turn may effect behavior. This

volume is not concerned primarily with human behavior in extreme situations, but it provides some understanding of the physiological effects of such situations on the human being.

Siemes, Fr. John A., S.J. "Hiroshima—August 6, 1945," *Bulletin of the Atomic Scientists*, I (May 1946), 2-6. This is an eyewitness report of the dropping of the A-bomb and subsequent events in Hiroshima. Though only a small segment of the population and their behavior is described, many of the problems found in peacetime disaster are indicated. In a limited fashion this article demonstrates the need for preparedness through civil defense planning and public education.

Smith, De Witt (ed.). "Disasters and Disaster Relief," *The Annals of the American Academy of Political and Social Science*, CCIX (January 1957), 1-169. The entire issue is composed of sixteen separate articles on various disaster problems. The physical characteristics of disasters, and the human response to disaster constitute one part of the volume. Six articles deal with governmental organization and plans for disaster, and five with the activities of voluntary agencies. In general, this volume is useful for clarifying the role of the Red Cross, Federal Civil Defense Administration, the Office of Defense Mobilization, the Armed Forces, and other organizations in disaster relief and rehabilitation.

Sporkin, Pitirim A. *Man and Society in Calamity: The Effects of War, Revolution, Famine, Pestilence Upon Human Mind, Behavior, Social Organization and Cultural Life*. New York: E. P. Dutton & Co., 1942. The calamities defined in this volume as "most frequent, most destructive, most terrible, and at the same time most instructive and significant," are those of war, revolution, famine, and pestilence. The book attempts to separate the effects common to all four of the above-mentioned calamities from the specific effects characteristic of each. The volume is divided into five parts: the influence of calamities on the mind; on behavior and vital processes; on social mobility and organization; and on sociocultural life; the causes of calamities and remedial activities are discussed. This is one of the few documents which attempts to encompass the multiple facets of disaster and to integrate them in accordance with current sociological theory.

"Special Issue on Civil Defense Against Atomic Attack," *Bulletin of the Atomic Scientists*, VI (August-September 1950), whole issue. All aspects of Civil Defense are treated in this document. Its history, dating from World War I to the present, planning in respect to weapons of modern warfare, medical and psychological effects of modern warfare, and a selected bibliography of approximately 165 items are presented.

Spiegel, John P. "Emotional Reactions to Catastrophe," *American Practitioner and Digest of Treatment*, V, No. 11 (November 1954), Supplement, 14-23. Human reactions to catastrophic events are analyzed from a psychoanalytic viewpoint. The traumatic experiences of early life influence the response to catastrophic experiences occurring in later life. Anxiety and overt behavior resulting from

the meaning of the event to individuals is analyzed. The psychological significance of catastrophic events is extended to broader social areas.

Stouffer, Samuel A., *et al. Combat and Its Aftermath. (The American Soldier, Vol. II.)* Princeton: Princeton University Press, 1949. The overall combat situation with its attendant problems of attitude, motivation and fear are described. The attitudes of individuals are compared with ratings of these same individuals' performance in battle. A section on combat motivation deals with social and situational aspects of the factors having to do with "why" the ground soldier is able to stay in combat. The motivational patterns of the soldier are for the most part those induced by the institutional situation characteristic of the army. A chapter on the control of fear in combat describes institutional patterns of the Army which help the soldier minimize and control his fear in the face of objective danger. Objective factors in morale, systematic review of psychoneurotic symptoms, problems of the "point system," and subsequent return to civilian life are discussed. Systematic, statistical analyses of significant relationships and variables are typical of the studies. Three other volumes are available on "the American Soldier." They are however more peripheral to disaster study.

Strauss, Anselm L. "The Literature on Panic," *Journal of Abnormal and Social Psychology*, XXIX (1944), 317-328. The literature on mass panic is reviewed and a summary of knowledge concerning cause and prevention is presented. Conditions contributing to panic episodes, such as the physical state of people, confusion, emotional tension, mental contagion are discussed. Problem areas are indicated and the author suggests concerted effort toward a solution of problems of methodology in the study of panic.

Symposium on Stress. Washington, D.C.: Walter Reed Army Medical Center, Army Medical Service Graduate School, March 16-18, 1953. Thirty-one papers dealing with "stress" are presented. The concept of stress is patterned after Selye's. The "stressors" described and examined include those which are both organic and functional. Particularly pertinent to disaster research are the papers which deal with individuals' psychological and physiological response to sociological and cultural stresses. A number of the reports presented are derived from active military operations. Others describe and discuss responses to natural disaster, such as flood and tornadoes. Though emphasizing the medical and psychiatric aspects of stress, many of the papers relate and interpret findings according to sociological, anthropological and psychological frames of reference.

Thomas, Dorothy Swaine, and Richard S. Nishimoto. *The Spoilage.* Berkeley and Los Angeles: University of California Press, 1946. Initially undertaken as an interdisciplinary study, this deals with the social, anthropological and psychological problems resulting from the crisis of evacuation. The volume records and analyzes the interaction between the government and the evacuees. It is concerned with many aspects of concentration and internment of Issei and Nisei Japanese, and covers such topics as

repressive actions of government agencies and the protest movements of the interned group against these actions.

Titmuss, Richard M. *Problems of Social Policy.* (History of the Second World War: United Kingdom Series.) London: H. M. Stationery Office and Longmans, Green, Co., 1950. The activities of the British Health Departments and their ancillary agencies during World War II are recorded in this volume. A major concern is the prevention and treatment of the ill effects on the civilian population engendered by air-raids. Part I provides information on the early efforts toward protection and defense. Part II deals with the period of time from 1938 to 1940, and presents data on the first large scale evacuation of mothers and children, and the accompanying social problems. Part III is concerned with evacuation, the threatened invasion and actual effects of air attack. The history of the hospital services during the entire war is presented in Part IV.

Torrance, E. Paul. "Small Groups Under Stress Conditions of Survival," *American Sociological Review*, XIX No. 6 (December 1954), 751-755. Approximately 200 interviews conducted with Air Force personnel who managed to survive after being forced down over enemy territory are analyzed. Factors pertinent to survival are identified, including those related to group structure and leadership. Communication within a group during the "in-flight emergency" and group cohesion appear to be characteristic of the groups that survived. Other factors, such as emotional response to the situation, behavioral contagion, and prestige are also discussed.

Tyhurst, J. S. "Individual Reactions to Community Disaster," *American Journal of Psychiatry*, CVII (1950-1951), 764-769. Individual behavior under stress is examined from viewpoints of psychodynamics, conditions precipitating the stress, and overt behavior in response to stress. A "natural history" of individual behavior in community disasters is described. Three sequential periods pertinent to conceptualizing disaster data, which include the period of impact, period of recoil and the post-traumatic period, are characterized according to stress, time, and psychological phenomena.

National Advisory Mental Health Council, Community Services Committee, Subcommittee on Civil Defense. *Mental Health Implications in Civilian Emergencies.* (Department of Health, Education, and Welfare Publication, No. 310) Washington, D.C.: U.S. Government Printing Office, May 1953. An effort is made to relate the stresses and crises of nondisaster living to those precipitated by disaster. Any crisis regardless of its source evokes an emotional response, therefore ability to adapt, to cope with any situation of acute discomfort is preparation for emotional adjustment to disaster. Since Civil Defense must depend on emotionally stable persons to be effective, psychological implications are inherent in planning for its emergency functioning. The problems of fear and panic, emotional casualties, and care of mental hospital patients are examined. Sociopsychological concepts pertinent to understanding the effects of community problems on emo-

tional stability are discussed. The roles of motivation and apathy, preparation of individuals for meeting the stresses of disaster, public information, training, administration, and dealing with particular segments of the population, e.g., children, are among the problems investigated. Many questions are raised in this document but few are actually answered. However, the questions are derived from a review of the literature and empirical study, and provide an excellent summation of the mental health problems likely to be precipitated by disaster. Recommendations for study, research and preparation are given.

U.S. Federal Civil Defense Administration. *Index to Federal Civil Defense Administration Publications*. Washington, D.C.: U.S. Government Printing Office, 1956. This is a complete subject index for all FCDA publications that have not been rescinded or declared obsolete. Included are administrative publications, executive orders and public laws, and technical publications.

U.S. Strategic Bombing Survey. Washington, D.C.: U.S. Government Printing Office, 1945-1947. The nine reports listed are those most pertinent to problems of human behavior in disaster. *Summary Report (European War)*; *Civilian Defense Division: Final Report*; *The Effects of Strategic Bombing on German Morale*, 2 vols.; *The Effects of Bombing on Health and Medical Care in Germany*; *Summary Report (Pacific War)*; *Summary Report Covering Air Raid Protection and Allied Subjects in Japan*; *The Effects of Bombing on Health and Medical Services in Japan*; *The Effects of Atomic Bombs on Health and Medical Services in Hiroshima and Nagasaki*; *The Effects of Strategic Bombing on Japanese Morale*. The summary reports are an historical account of the effects of bombing raids on Japan and Germany. The reports on morale appraise the direct and indirect effects of air attack on the willingness of the populations to support the war effort. Social and psychological factors are investigated in both studies. The civilian defense studies deal with the organization behind the activities directly related to protection of the populations from bombing. Warning, evacuation, fire prevention, rescue, etc., as well as the behavior of people before, during, and after aerial attack are discussed.

van Dijk, K., and J. Pilger. *Communications in the Stricken Areas in February 1953*. (Studies in Holland Flood Disaster 1953, Vol. I.) Washington, D.C.: National Academy of Sciences-National Research Council, Committee on Disaster Studies, 1955. Mechanical breakdown of the existing modern network of communication and the social consequences of the breakdown are investigated. The history of the emergency networks is traced from their inception to the restoration of the normal communications system. Functioning of government agencies when forced to operate without usual communication channels, preparation for emergency of this character, actual channels through which isolated communities contacted the outside world, and rumors arising in the absence of information constitute main areas of research. Methods of investigation and conclusions are presented. This is primarily a factual and descriptive study.

Vaughn, Elizabeth. *Community Under Stress: An Internment Camp Culture*. Princeton: Princeton University Press, 1949. The author, an involuntary participant of an internment camp administered by the Japanese during World War II, presents an interpretation of social and cultural processes functioning in a group consisting of individuals of varied status and culture. Social status and roles, cultural values, and leadership in crisis are discussed in relation to survival efforts. Contains a 21-item bibliography.

Vernon, P. E. "Psychological Effects of Air-Raids," *Journal of Abnormal and Social Psychology*, XXXVI (1941), 457-476. This is a survey based on responses to questionnaires obtained from trained medical and psychological personnel who dealt with the London population during the World War II blitz. The responses to air-raids which consisted of "normal behavior," emotional reactions, mental disorders including those of major and minor severity, and the reactions of children and mental defectives are described. A conclusion drawn by the author supports the hypothesis that both adults and children can handle in a psychologically satisfactory manner large amounts of conscious fear or stress when there is group support.

Wallace, Anthony F. C. *Human Behavior in Extreme Situations: A Survey of the Literature and Suggestions for Further Research*. (Committee on Disaster Studies Report, No. 1.) Washington, D.C.: National Academy of Sciences-National Research Council, 1956. An evaluation of the literature on disaster, both scientific and journalistic, is presented. Based on information culled from the literature and empirical observation, the author has constructed a theoretical model of disaster that recognizes the time and space variables of disaster. Suggestions are offered for further study of human behavior in extreme situations.

..... "Mazeway Resynthesis: A Biocultural Theory of Religious Inspiration," *Transactions of the New York Academy of Sciences*, Ser. 2, XVIII, No. 7 (1956), 626-638. Deliberate, organized efforts of a society to change its culture in a way designed to provide a more satisfying way of life has been defined as a revitalizing movement. The efforts of the Seneca Indian, Hansome Lake, who, after disaster struck his people, instituted a new religion and brought about a marked change in the culture of his people are described and analyzed in terms of a revitalization movement. A biocultural theory which encompasses accepted ideas of "body image," "role," "self," "the other," "generalized other," "behavioral environment," and "world view" is offered. Physiological mechanisms, pertinent to the brain's ability to organize and codify cognitive residues of perception, play an essential role in the resynthesis of experiences and act to reestablish order and relieve stress.

..... "Revitalization Movements," *American Anthropologist*, LVIII, No. 2 (April 1956), 264-281. The findings, concepts, and assumptions derived from the study of religious and other social movements, and the process by which these movements may bring about a rapid change in, or actually create, a new cultural system are presented.

The author points to the fact that these movements are preceded by intense stress for individuals in the society and a disillusionment with the distorted cultural *gestalt*. Functional stages of revitalization movements occur in a series and represent a uniform process. Data are analyzed according to these formulations.

..... *Tornado in Worcester: An Exploratory Study of Individual and Community Behavior in an Extreme Situation*. (Committee on Disaster Studies Report, No. 3.) Washington, D.C.: National Academy of Sciences-National Research Council, 1956. A theoretical time-space model of disaster is presented and the individual and community experiences resulting from the tornado are analyzed within this concept. Hypotheses are postulated regarding the kinds of behavior of victims and helpers, many of which may be classified as the "disaster syndrome" and "counter disaster syndrome," respectively. Characteristics of the "isolation period," common to many disasters, are identified and discussed in terms of secondary impact and increased casualties. This document represents a progressive analysis of the event from the "pre-impact period" to the period of "recovery."

Williams, Harry B., and Jeannette F. Rayner. "Emergency Medical Services in Disaster," *Medical Annals of the District of Columbia*, XXV, No. 12 (December 1956), 655-662. Community disorganization, which results from disaster, produces a profound effect on emergency medical services. Failure of community services, such as utilities, traffic and transportation control, and communication facilities are among the problems that alter the environment within which the medical services operate. This altered environment compounds the problems to be solved

by hospital and other medical personnel. Propositions concerning disaster problems and their impact on responsible medical personnel are discussed.

Withey, Stephen B. *Survey of Public Knowledge and Attitudes Concerning Civil Defense*. Ann Arbor: University of Michigan, Institute for Social Research, Survey Research Center, September 1954. This volume presents the findings of a national study conducted in March 1954 to determine the attitudes, comprehension, expectations, and level of information typical of the American public in matters of protection, effects of nuclear weapons, and civil defense. Problems chosen for study were those which would provide answers to current problems of the Civil Defense Administration. The variables studied were primarily those of: 1) individual knowledge, 2) involvement or participation in civil defense, 3) probable behavior in crisis, and 4) factors contributing to the various answers of the first three variables.

Wolfenstein, Martha. *Disaster: A Psychological Essay*. Glencoe: The Free Press, 1957. The author has taken the large volume of data gleaned by disaster researchers on the emotional consequences of disaster and formulated a group of psychoanalytically-oriented hypotheses. While the data do not permit a testing of these hypotheses, they do suggest areas for future research. Individual responses to catastrophe are related to the specific characteristics of each phase of disaster and to the role of culture. Psychoanalytical interpretations of the responses are provided throughout. This is one of the few works on emotional reactions to disaster that attempts to understand the role of the unconscious in determining behavior in disaster.